

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-6 (canceled)

Claim 7 (currently amended): A method for synthesizing converting a substrate of  $\alpha$ 2,8/2,9 polysialyltransferase into a polysialic acid product having alternating  $\alpha$ 2,9- and  $\alpha$ 2,8 linkages of sialic acid, said method comprising step of the following steps:

Step A: contacting the substrate a sialic acid acceptor and a CMP-sialic acid donor  
with  $\alpha$ 2,8/2,9 polysialyltransferase from *Escherichia coli* K92 under cell-free  
conditions for promoting enzymic catalysis of a conversion of the substrate into  
the product for sequentially sialylating the sialic acid acceptor with the CMP-sialic  
acid donor for releasing CMP and forming the polysialic acid product; and

Step B: removing the released CMP with alkaline phosphatase.

Claim 8 (currently amended): A method according to claim 7 wherein the  $\alpha$ 2,8/2,9  
polysialyltransferase is from *escherichia coli* K92 the sialic acid acceptor is selected  
from the group consisting of sialic acid, an oligomer of sialic acid, and a ganglioside.

Claim 9 (new): A method according to claim 9 wherein the sialic acid acceptor is selected from the group consisting of sialic acid, a dimer or trimer of sialic acid, 9-O-acetyl sialic acid, GD<sub>3</sub>, GM<sub>3</sub>, GD<sub>2</sub>, GT<sub>1a</sub>, GT<sub>1b</sub>, GQ<sub>1b</sub>, and a ganglioside mixture.